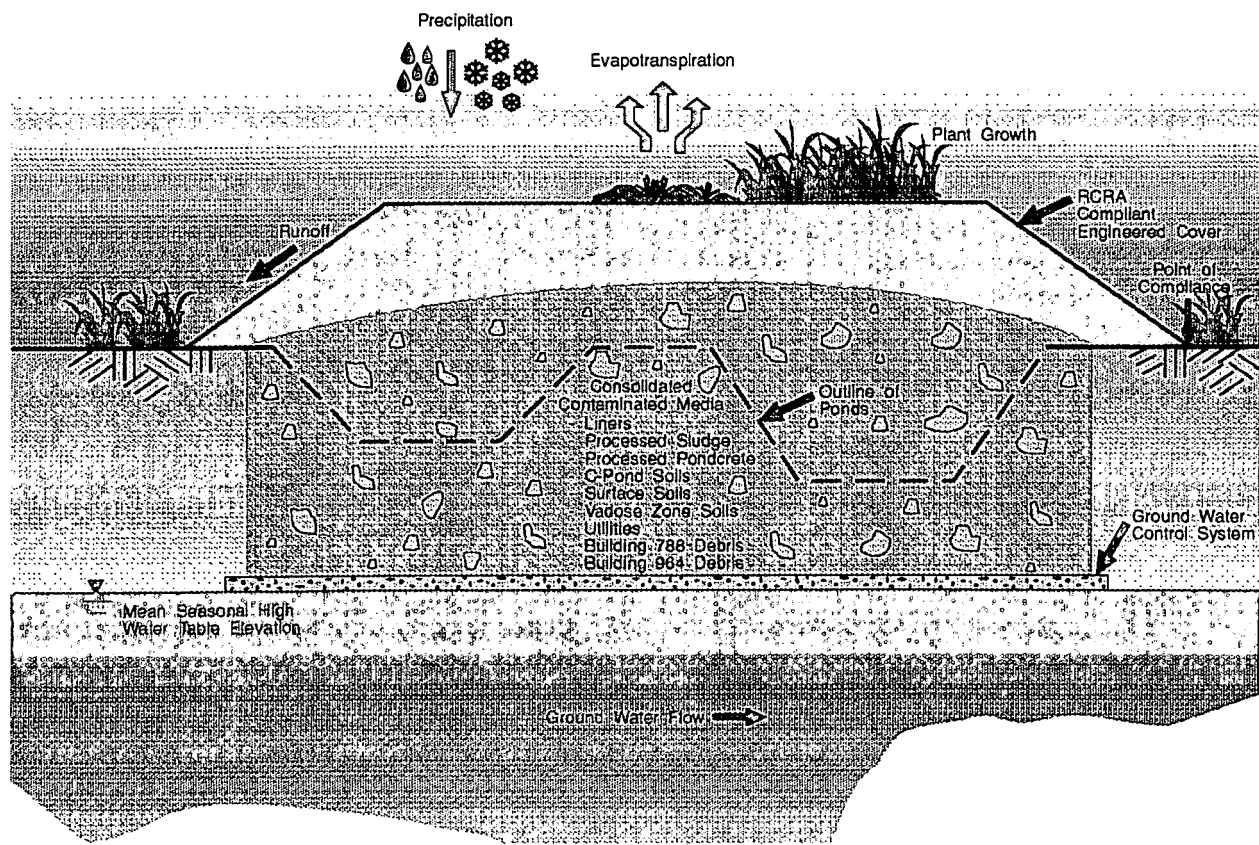


OU4 Interim Measure/Interim Remedial Action Environmental Assessment Decision Document

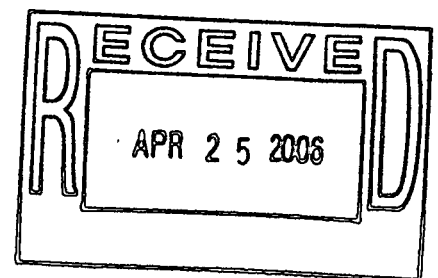
Part III - Interim Measure/Interim Remedial Action Design Analysis

Summary



Part III Summary

Part III of the IM/IRA-EA Decision Document determines the risks associated with the soils surrounding the OU4 Solar Evaporation Ponds using risk-based preliminary remediation goals (PRGs) as the comparison criteria. Calculations based upon acceptable risk levels were performed in order to determine the areal extent of contaminated soils and volumes of soils requiring remediation. These calculations were performed following EPA Risk Assessment Guidance. PRGs were determined for both the surficial soils [0 to 3 inches below ground surface



(bgs)] and subsurface soils (3 inches bgs to mean ground water elevation). Each of these soil media were evaluated under separate risk-based exposure scenarios. Risk from exposure to contaminants in the surficial soils was evaluated against a hypothetical residential exposure scenario; likewise, risk from exposure to contaminants in the subsurface soils was evaluated against a hypothetical construction worker exposure scenario. These classifications were made based on the potential receptors for the two soil zones.

The PCOCs identified in Part II were compared against the surficial (on-site resident)

- 1) Overall protection of human health and the environment.
- 2) Compliance with Regulations
- 3) Long-term effectiveness and permanence
- 4) Reduction of toxicity, mobility, and volume through treatment
- 5) Short-term effectiveness
- 6) Implementability
- 7) Cost

and subsurface (construction worker) soil PRGs to determine if a PCOC graduated to a contaminant of concern (COC). Table 1 lists the OU4 COCs based on this evaluation.

Part III of the IM/IRA-EA Decision Document also contains a comprehensive technology identification and screening section reviewing technologies that may be applicable for the remediation of the OU4 contaminated media. All the potential technologies were screened against the following four criteria: proven effectiveness, applicability, implementability, and cost.

Five General Response Actions (GRAs) were identified. The GRAs are a series of al-

ternatives which utilize the potentially applicable technologies in order to find a realistic means to remediate the various contaminated media associated with OU4. The GRAs included a no action alternative (I), a closure in place alternative (II), an *in situ* treatment alternative (III) and *ex situ* treatment alternative (IV), and a contaminated media removal alternative (V). Table 2 summarizes the GRAs.

A comprehensive Environmental Response Compensation and Liabilities Act (CERCLA) alternatives evaluation was performed on the GRAs based on the following seven criteria:

Based on the detailed analysis of the GRAs, GRA II, the closure in place alternative, was recommended as the best remedial solution for OU4. GRA II received the highest overall score relative to the other GRAs evaluated against the CERCLA criteria. This alternative utilizes proven technologies and can be readily implemented at the RFETS.

Part III also contains nine appendices containing support documentation. These appendices include statistical back up for the PRG calculations and PCOC determination, chemical profiles for the PCOCs, modeling theory and results, regulatory analysis, costing information, and ground water control system information.

TABLE 1

TABLE 1
CONTAMINANTS OF CONCERN

<u>Surface Soils</u>	<u>Subsurface Soils</u>	
Beryllium	Indeno(1,2,3-cd)pyrene	Cadmium
Cadmium	Aroclor-1254	Americium-241
Benzo(a)anthracene	Americium-241	Plutonium-239
Benzo(a)pyrene	Cesium-134	Plutonium-240
Benzo(b)fluoranthene	Plutonium-239	Radium-226
Benzo(ghi)perylene	Plutonium-240	Uranium-235
Benzo(k)fluoranthene	Uranium-233	Uranium-238
Phenanthrene	Uranium-234	
Bis(2-ethylhexyl)phthalate	Uranium-235	
Chrysene	Uranium-238	

TABLE 2
DESCRIPTION GENERAL RESPONSE ACTIONS

GRA	Description
(I) No Action	Regrade and seed Pond area. Sludge and pondcrete are disposed offsite.
(II) Closure in Place	Consolidate OU4 wastes beneath an engineered cover with a groundwater control system.
(III) In Situ Treatment	<i>In situ</i> treatment of contaminated soil, liners, and sludge. Consolidation of pondcrete under an engineered cover.
(IV) Contaminated Media	Remove all contaminated media for storage/disposal and backfill Ponds. Sludge and pondcrete will be treated to meet waste acceptance criteria for off-site disposal.
(V) Contaminated Media Removal With Ex-Situ Treatment	Remove all contaminated media. Treat all soil <i>ex situ</i> and backfill the Ponds using treated soil. Liners, sludge, pondcrete will be disposed off-site.